

REMARKS

Claims 1 – 26 were pending in the present application. Claims 1, 15, 16, and 21 have been amended. Claims 1 – 26 remain pending.

Objection to the Claims

Claim 1 was objected to for including a semicolon instead of a colon after the preamble of the claim. Applicant has amended claim 1 to correct this informality. Withdrawal of the objection is respectfully requested.

Rejection of the Claims Under 35 U.S.C. § 101

Claims 21 – 25 are rejected under 35 U.S.C. § 101. The Office Action argued that system claims 21 – 25 are directed to non-statutory subject matter because no hardware component is recited. Applicant respectfully disagrees with the rejection. However, to expedite prosecution, Applicant has amended claim 21 to recite, in pertinent part, “at least one storage device.” Accordingly, withdrawal of the § 101 rejection is respectfully requested.

Rejections of the Claims Under 35 U.S.C. § 102(e) and 35 U.S.C. § 103(a)

Claims 1 – 25 are rejected under 35 U.S.C. § 102(e) as being anticipated by Tamer et al. (U.S. Patent No. 6,938,059, hereinafter “Tamer”). Claim 26 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Tamer in view of Agarwalla (U.S. Application No. 2003/0061278). Applicant respectfully traverses these rejections and requests reconsideration in view of the following remarks.

Claim 1 has been amended to recite, in pertinent part, a method comprising “updating the signature to reflect a change in the state of the data object, wherein a determination to update the signature is performed in the second storage environment.” Support for the amendment may be found in Applicant’s specification at least at page 10, lines 16 – 29. Claim 1 (as amended) recites:

1. A method to map a storage environment data object, comprising:
receiving a reference to the data object in a first storage environment,
wherein the data object resides in a second storage environment;
generating a first data structure from the reference representing one or
more physical locations of the data object within the second
storage environment;
associating a signature with the data object, wherein the signature is
indicative of a state of the data object;
retaining the first data structure in the first storage environment;
updating the signature to reflect a change in the state of the data object,
wherein a determination to update the signature is performed in the
second storage environment;
querying the second storage environment for a change to the signature in
preparation for a data access operation on the data object;
updating the first data structure if the signature has changed; and
performing the data access operation using the first data structure to
interface with one or more of the physical locations of the data
object from the first storage environment.

Applicant respectfully submits that Tamer does not teach or suggest a method comprising “updating the signature to reflect a change in the state of the data object, wherein a determination to update the signature is performed in the second storage environment” as recited in claim 1. The mapping functions and metadata maintenance in Tamer are performed at the host computer. For example, the Office Action cited col. 4, lines 46 – 64 and Fig. 10 of Tamer as teaching metadata which is argued to be equivalent to the signature indicative of the state of the data object. However, at the cited passages and throughout Tamer, there is no teaching or suggestion that any determination to update the metadata is performed outside of the host computer.

Furthermore, Applicant respectfully submits that Tamer does not teach or suggest a method comprising “querying the second storage environment for a change to the signature in preparation for a data access operation on the data object” as recited in claim 1. In rejecting this limitation of claim 1, the Office Action cited col. 22, line 44 through col. 23, line 13 and Fig. 12 of Tamer. At the cited locations, Tamer discloses querying a storage device for internal structure information, such as the mapping of a logical volume address to the corresponding physical blocks on the storage device. However, this internal structure information does not relate to a signature which was associated with a

data object and which is indicative of a state of the data object. This internal structure information does not relate to a change in such a signature. Additionally, this internal structure information does not relate to Tamer's metadata, maintained at the host computer, which was previously argued by the Office Action to teach the signature of Applicant's claim 1.

Applicant also respectfully submits that Tamer does not teach or suggest a method comprising "updating the first data structure if the signature has changed" as recited in claim 1. In rejecting this limitation of claim 1, the Office Action cited col. 14, lines 10 – 29 and 33 – 38 of Tamer. However, in the cited passages, Tamer discloses updating the number of mapping layers (lines 10 – 29) or adding a new mapping layer (lines 33 – 38). Tamer does not teach or suggest updating a first data structure which represents one or more physical locations of the data object within the second storage environment, nor does Tamer teach or suggest updating the first data structure if a signature indicative of a state of the data object has changed.

Therefore, Applicant respectfully submits that claim 1 is patentably distinct from the cited references. For similar reasons, Applicant submits that independent claims 9, 15, and 21 are patentably distinct from the cited references. Applicant also respectfully submits that numerous ones of the dependent claims recite further distinctions over the cited references. However, since the independent claims have been shown to be patentably distinct, a further discussion of the remaining dependent claims is not necessary at this time. Accordingly, withdrawal of the § 102(e) and § 103(a) rejections of claims 1 – 26 is respectfully requested.

CONCLUSION

Applicant submits the application is in condition for allowance, and an early notice to that effect is requested.

If any fees are due, the Commissioner is authorized to charge said fees to Meyertons, Hood, Kivlin, Kowert, & Goetzel, P.C. Deposit Account No. 501505/5760-16700/BNK.

Respectfully submitted,



B. Noël Kivlin
Reg. No. 33,929
ATTORNEY FOR APPLICANTS

Meyertons, Hood, Kivlin, Kowert, & Goetzel, P.C.
P.O. Box 398
Austin, TX 78767-0398
Phone: (512) 853-8800
Date: August 15, 2006